

**DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION  
NEW ENGLAND REGION**



**DRAFT**

**WRITTEN RE-EVALUATION OF  
JULY 2011 ENVIRONMENTAL IMPACT STATEMENT  
AND  
SEPTEMBER 23, 2011 RECORD OF DECISION**

**RUNWAY 16-34 RSA AND CONSTRUCTION SEQUENCE MODIFICATION  
THEODORE FRANCIS GREEN AIRPORT  
WARWICK, RHODE ISLAND**

**November 29, 2012**

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## **1. INTRODUCTION/SUMMARY**

The Federal Aviation Administration (FAA) issued a Record of Decision on September 23, 2011, which approved various safety and efficiency projects at T.F.Green Airport in Warwick, Rhode Island.<sup>1</sup> The Record of Decision (ROD), available at [www.faa.gov/airports/environmental/records\\_decision](http://www.faa.gov/airports/environmental/records_decision), followed an Environmental Impact Statement, completed on June 10, 2011 and published in the Federal Register on July 8, 2011. Copies of both documents are available at the FAA Regional Office in Burlington, Massachusetts (781-238-7613 or [Richard.Doucette@FAA.gov](mailto:Richard.Doucette@FAA.gov)) and at the Rhode Island Airport Commission (RIAC) offices in Warwick, Rhode Island (888-268-7222).

Following the issuance of the ROD, as part of the engineering/design process, RIAC completed a more detailed cost analyses for the various construction projects. The original estimate of approximately \$70 million for safety and related improvements was a preliminary estimate. After the more detailed assessment, the cost of this aspect of the project had escalated to approximately \$110 million. In particular, the cost of commercial land acquisition and demolition, as well as the Engineered Material Arresting System, exceeded original estimates.

After RIAC and FAA reviewed these more detailed costs, the parties agreed that the new cost of the safety enhancements was not consistent with FAA guidance on acceptable costs for this type of safety improvement. RIAC and FAA have identified a scaled-down version of the Runway 16-34 safety enhancements that will achieve an acceptable level of safety, and FAA has concurred in its practicability. In addition, in an effort to better manage construction costs, some of the safety and efficiency enhancements will be phased-in over a longer time period than discussed in the 2011 ROD. The most substantive change is the elimination of the Airport Road relocation, as well as all land acquisition in the vicinity of the Airport Road/Post Road intersection. The scope of the Runway 5-23 extension remains unchanged. Figure PVD 1 on page 12 of this document shows the EIS Selected Alternative and the modifications to the selected alternative (herein referred to as the Modified Alternative). As will be discussed in more detail, the Modified Alternative has a smaller runway safety area for Runway 16-34, which allows Airport Road to remain in its current location. The final cost for the Runway 16-34 RSA is anticipated to be approximately \$40 million.

### **1.1 FEDERAL ACTIONS**

This proposed modification to the Runway 16-34 Safety Enhancements will require RIAC to revise the Airport Layout Plan to depict the proposed action. This revised Airport Layout Plan will then be submitted to the FAA for acceptance. This Modified Alternative and the revised construction sequence were not assessed in the 2011 Environmental Impact Statement (EIS) or approved in the ROD, although the environmental impacts are similar to the No action Alternative with regard to Runway 16-34. To ensure full compliance with the National Environmental Policy Act (NEPA), the FAA is evaluating the Modified Alternative and the change in construction sequence. This Written Re-Evaluation follows guidance provided by FAA Environmental Orders 1050.1E and 5050.4B. Both Orders reference re-evaluating NEPA documents, when project design changes arise after the issuance of a ROD.

### **1.2 SUMMARY OF PROJECT CHANGES**

Below is a summary of the EIS Selected Alternative (B4), the Modified Alternative, and the relative environmental impacts.

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<sup>1</sup> In November 2011, the City of Warwick filed a Petition for Review challenging the FAA's Decision. The Rhode Island Airport Corporation was granted status as an Intervenor. Shortly after the Petition was filed in the U.S. Court of Appeals for the District of Columbia Circuit, RIAC and the City of Warwick began settlement negotiations. As of the result of a successful agreement, the City of Warwick moved to dismiss the pending lawsuit. The case was dismissed in May 2012.

#### EIS Selected Alternative B4

Runway 16-34 Safety Areas

- relocation of Airport Rd.
- relocation of Delivery Drive
- 96-foot shift of runway
- Runway reconstruction

Relocate Taxiway C

Extend Runway 5-23

- relocation of Main Ave.
- relocation of Winslow Park

All other improvements

#### Modified Alternative

Smaller Engineered Material Arresting System (EMAS)

No relocation of Airport Rd., drainage or utilities

No relocation of Delivery Drive, drainage or utilities

No runway shift, or changes to navigation aids

Occurs 3-4 years later

Occurs 5 years later

Occurs 2 years later

Occurs 2 years later

Occurs 1-3 years later

Occur after 2020

### **1.3 SUMMARY OF CHANGES TO ENVIRONMENTAL IMPACTS**

The Modified Alternative causes essentially no change in impacts to the following resources:

- Environmental Justice, Children's Health and Safety Risks
- Wetlands and Waterways
- Rare Species, Fish, Wildlife and Plants
- Floodplains
- Coastal Resources
- Farmlands
- Hazardous Materials
- Energy Supply, Natural Resources and Sustainable Design

#### **Noise**

Since Airport Road will not be relocated, any new roadway noise exposure caused by the road relocation will be avoided. Any small shift in aircraft noise caused by the 96-foot shift of Runway 16-34 to the northwest will be avoided.

#### **Compatible Land Use**

Without the relocation of Airport Road and the shift, the Modified Alternative reduces impacts to the community north of the airport. No properties will be acquired in this area.

#### **Social and Socioeconomic**

Business relocations, loss of jobs or tax revenue associated with the road relocation will be avoided. Over \$4 million in taxable business revenue that would have been eliminated will still be collected by Warwick. The \$157,000 in annual property taxes that would have been eliminated will continue to be paid to the City. The reduced construction activity will result in fewer construction jobs, and fewer jobs annually due to the extended construction schedule.

#### **Surface Transportation**

The elimination of the Airport Road relocation will allow the Airport Road/Post Road intersection to degrade in the future. By the year 2025, the level of service C to be achieved under B4 will degrade to D, during the weekday morning peak period.

#### **Air Quality**

Total construction-related emissions associated with the Modified Alternative are much less (approximately 30 percent for VOC and NO<sub>x</sub> by comparison) than the B4 Alternative and are well with the applicable de-minimis thresholds of the CAA General Conformity Rule.

**Historic and Archaeological (including historic resources protected under DOT Act Section 4(f))**

Retaining Airport Road in its current location and deferring construction of the cargo facility minimizes adverse effects on the eligible historic district along Airport Road, and the historic airport terminal. Overall, the impacts to historic resources are less, with the Modified Alternative

**Water Quality**

The Modified Alternative will result in a 0.7 acre decrease in area of roadways and parking, as a result of the elimination of paving from the integrated cargo facility in the Buckeye Brook North drainage area. This will result in a small reduction in the total pollutant load.

## **2. EIS SELECTED ALTERNATIVE**

This section describes the Alternative selected in the EIS (Section 3) and Record of Decision (Section 7). The proposed modifications to this Alternative are described in Section 4 of this document.

The 2011 EIS assessed a comprehensive airport improvement program. As stated in Section 2 of the EIS, The purpose of the T.F. Green Airport Improvement Program was to:

- Enhance Airport safety
- Enhance the efficiency of the Airport and the New England Regional Airport System to more fully meet the current and anticipated demand for aviation services

The **airport safety enhancements** pertain to Runway 16-34. An Engineered Material Arresting System (EMAS) will be installed to improve the Runway Safety Area (RSA) for Runway 16-34, as the current RSA does not meet current FAA dimensional standards. Taxiway C runs parallel to Runway 16-34. It needs to be relocated 100 feet farther from Runway 16-34 (total separation of 400 feet) to meet the design standards and enhance the safety of airfield operations. Hangar No.1 is located near the Runway 16 approach end and is within the Obstacle Free Area (OFA). It needs to be removed to meet current FAA airport design standards and eliminate an obstruction to air navigation.

The **airport efficiency enhancements** are located throughout the airport. The principal efficiency enhancement is the extension of Runway 5-23 from 7166 feet to 8700 feet in length, to more fully meet current and future needs for non-stop flights to the West Coast.

Modifications to the Passenger terminal complex will be required to enhance efficiency and passenger convenience. Modifications to the terminal complex facilities include up to seven additional aircraft gates and modifications to the concourse, terminal apron, taxi lanes, and the central heating and cooling plant.

The existing belly cargo and ground service equipment maintenance building will be demolished to accommodate the proposed terminal and apron expansion. As the Project calls for the existing Ground Service Equipment maintenance facility to be demolished, a new, larger maintenance facility must be created to meet the forecast fleet of Ground Service Equipment units operating at the Airport. Also, the existing fuel farm will be expanded since the demand for jet fuel exceeds the present capacity to receive, process, store, and deliver fuel.

A new integrated cargo facility will be constructed on the north side of the airfield, to meet the demand for these services.

Enhancements to the roadways that provide access to the terminal area are needed to enhance the existing level of service of the roadway system. Additional parking capacity will be needed to accommodate anticipated passenger and airport employee demand by 2020.

Figure 2-1 from the ROD – Conceptual Project Layout - shows the 2011 proposed improvements on the next page. This was the EIS Selected Alternative, B4.





### **3. LEGAL STANDARDS**

In accordance with FAA Order 1050.1E, Environmental Impacts: Policies and Procedures and FAA Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects, these proposed changes are analyzed to determine if they are substantial and whether the resultant environmental impacts present significant new circumstances or information relevant to environmental concerns that have a bearing on the proposed action or its environmental impacts.

Additionally, FAA Order 1050.1E, paragraph 515a, states “The preparation of a new EIS is not necessary when it can be documented that the:

- (1) Proposed action conforms to plans or projects for which a prior EIS has been filed and there are no substantial changes in the proposed action that are relevant to environmental concerns;
- (2) Data and analyses contained in the previous EIS are still substantially valid and there are no significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts; and
- (3) Pertinent conditions and requirements (all) of the prior approval have, or will be, met in the current action.”

The Order defines significant information as “information that paints a dramatically different picture of impacts compared to the description of impacts in the EIS.” Paragraph 516a.

If the proposed changes do not meet the criteria in paragraph 515a(1)-(3), then further analysis is necessary. (See FAA Order 1050.1E, Paragraph 516a.)

Per FAA Order 5050.4B, paragraph 1402 (b):

A supplement to the FEIS for this project is required if:

- (1) The airport sponsor or FAA makes substantial changes in the proposed action that could affect the action’s environmental effects; or
- (2) Significant new changes, circumstances or information relevant to the proposed action, its affected environment, or its environmental impacts becomes available.

Order 5050.4B also discusses the format and circulation of a Written Re-Evaluation:

d. **Format and circulation.** The responsible FAA official should develop a format to prepare a written re-evaluation. The re-evaluation should be reviewed internally. The responsible FAA official should place a copy of the re-evaluation in the project’s administrative file. The responsible FAA official need not make the written re-evaluation available to the public. However, that document may be made available to the public at the discretion of the responsible FAA official.

## **4. MODIFIED ALTERNATIVE**

### **4.1 PROJECT CHANGES**

Following the issuance of the 2011 Record of Decision, the Rhode Island Airport Corporation (RIAC) developed more detailed cost estimates for the various construction projects. In the spring of 2012, RIAC informed the FAA that, while the cost estimate for the Runway 5-23 extension and related projects remained unchanged, the cost estimate for the Runway 16-34 safety enhancements increased. The original estimate of approximately \$70 million had escalated to approximately \$110 million. In particular, the cost of commercial land acquisition and demolition, as well as Engineered Material Arresting System, far exceeded original estimates.

Using FAA Order 5200.9 - FINANCIAL FEASIBILITY AND EQUIVALENCY OF RUNWAY SAFETY AREA IMPROVEMENTS AND ENGINEERED MATERIAL ARRESTING SYSTEMS - the FAA determined the "Maximum Feasible RSA Improvement Cost" for the Runway 16-34 RSA to be \$17 million. But the latest cost analysis indicated the full cost for RSA could be as high as \$110 million. The FAA and RIAC then considered the installation of a non-standard EMAS bed. FAA Order 5200.9, Paragraph 7 provides:

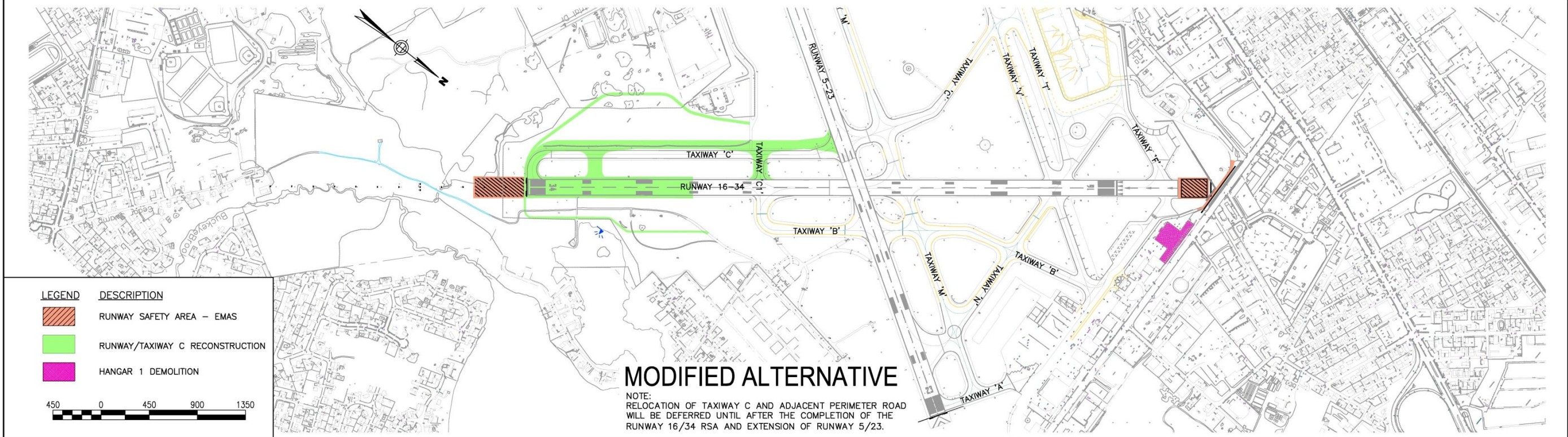
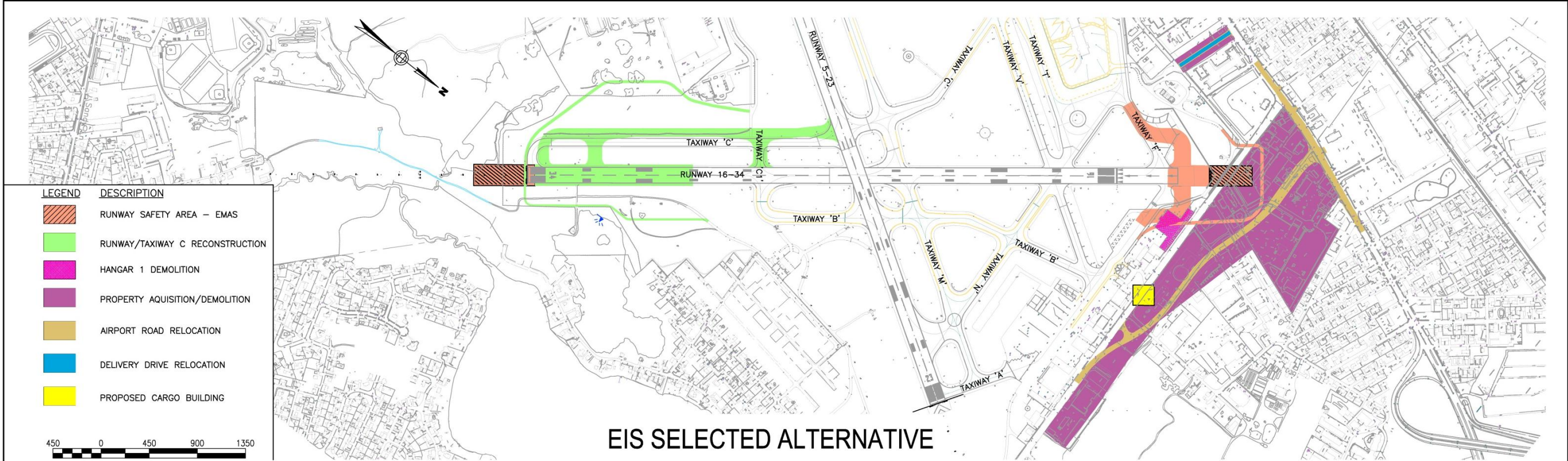
It will often not be practicable to provide either a standard RSA or a standard EMAS installation, either because the cost of both is above the maximum feasible cost, or because displacing the landing threshold will adversely affect operation. When neither a standard RSA nor a standard EMAS system can be provided within maximum feasible costs, a non-standard EMAS that will stop the design aircraft traveling at 40 knots or more should be considered.

Once RIAC and the FAA realized the construction costs needed to be lowered, consideration was given to downsizing various project elements, different construction phasing, or both. One costly component of the construction program could potentially be avoided: the relocation of a portion of Airport Road. . The partial (as opposed to full) relocation of Airport Road was an outgrowth of the screening process during the EIS. That same process now results in the full elimination of the road relocation. This requires the installation of the Runway Safety Area into very limited space, south of Airport Road, inside the present airport boundary.

The EMAS beds on both ends of Runway 16-34 were originally anticipated to be approximately 170 feet wide by 400 feet long. The EMAS bed on the Runway 34 end could be slightly smaller and the Runway 16 end EMAS bed will now be approximately 170 feet wide by 250 feet long. The exact dimensions will be determined through the design process required by the manufacturer. It is anticipated this Runway 16 EMAS bed will be sufficient to stop a Boeing 737 (the most commonly used commercial aircraft at T.F.Green) travelling at speeds less than 70 knots, but greater than 40 knots. This meets FAA criteria and will provide an acceptable level of safety. A Runway Safety Area Determination has been completed by the FAA, and is included as an attachment. This modification will allow Airport Road to remain in its present location. It also eliminates the need to acquire approximately 12 businesses, one residence and the costs associated with that land acquisition. The final cost for the Runway 16-34 RSA is anticipated to be approximately \$40 million.

Leaving Airport Road in its present location has benefits. Delivery Drive will remain in its existing location, as its access has not been terminated. Also, the potential relocation of Airport Road, and the construction of the Integrated Cargo Facility in the space formerly occupied by the road, would have caused impacts to historic resources. These potential impacts were associated with the former airport terminal and other airport buildings, which had been deemed eligible for listing on the National Register of Historic Places. The FAA and RIAC have executed a Memorandum of Agreement with the State Historic Preservation Officer (SHPO), to mitigate these impacts. But since the road will not be relocated, these impacts will not occur.





REVISIONS			
REV. NO.	DATE	DESCRIPTION	BY

SCALE: AS SHOWN
DATE: 8-27-2012
DESIGNED BY: xxx
DRAWN BY: xxx
CHECKED BY: xxx
APPROVED: xxx

T.F. GREEN AIRPORT  
WARWICK, RHODE ISLAND  
T.F. GREEN AIRPORT IMPROVEMENT PROGRAM  
**RUNWAY 16-34 SAFETY IMPROVEMENTS**

DRAWING NO.  
**PVD1**  
SHEET OF xx



As the need for that cargo facility is driven by demand that has not yet materialized, and the location/configuration of the facility is not now known, when the need arises for that facility, RIAC and the FAA will conduct appropriate environmental review, and consult with the SHPO as required.

To create as much room as possible for the Runway 16-34 RSA in the vicinity of Airport Road, the 96-foot runway shift to the northwest will be eliminated. The runway shift was included in the EIS to bring the construction out of the wetlands to the southeast as much as possible. The toe of slope will remain as shown in the EIS (see Figure 5-40), which results in leaving Runway 16-34 in its present location. This will have a minor secondary benefit of eliminating the need to move any navigational aids, and avoiding any minor noise impacts created by the runway shift. It will also avoid the need to relocate that portion of the Airport Road water main that would have been located under the EMAS bed.

In a further effort to reduce cost in the short term, FAA and RIAC have decided to delay implementation of the Taxiway C relocation. This will be moved laterally, away from Runway 16-34, to provide additional separation between the taxiway and runway. While the relocation of Taxiway C is still planned, this project has been delayed until approximately 2019-2020.

The proposed changes are consistent with alternatives considered in the Final EIS. Specifically, on the Runway 16 approach end, the proposed changes will result in a configuration similar to the No Action Alternative. On the Runway 34 approach end, the proposed changes consist of not shifting the runway end 96 feet and installation of a slightly smaller EMAS bed. Otherwise, the resulting configuration is the same as the Selected Alternative in the EIS and Record of Decision.

Below is an overview of the changes to the Runway 16-34 Safety Area Enhancements:

<u>EIS Selected Alternative B4</u>	<u>Modified Alternative</u>
Runway 16-34 Safety Areas	Smaller Engineered Material Arresting System (EMAS)
○ relocation of Airport Rd.	No relocation of Airport Rd., drainage or utilities
○ relocation of Delivery Drive	No relocation of Delivery Drive, drainage or utilities
○ 96-foot shift of runway	No runway shift, or changes to navaids
○ Runway reconstruction	Occurs 3-4 years later
Relocate Taxiway C	Occurs 5 years later
Extend Runway 5-23	Occurs 2 years later
○ relocation of Main Ave.	Occurs 2 years later
○ relocation of Winslow Park	Occurs 1-3 years later
All other improvements	Occur after 2020

**4.2 CONSTRUCTION SEQUENCING**

The EIS Selected Alternative (B4) construction phasing will be modified as shown in the revised construction sequence attachment. Table A compares the Alternative B4 construction phasing schedule as analyzed in the EIS with the Modified Alternative. In general, the projects will be constructed in later years under the Modified Alternative. Airport Road and Delivery Drive will not be relocated. The Taxiway C relocation will likely occur in the 2019-2020 timeframe, along with the reconstruction of Runway 16-34. The integrated cargo facility projects will be deferred beyond the program planning horizon. Other projects such as the south service area, auto parking, the terminal expansion, and the terminal roadways will also be deferred to future dates, as demand for these facilities require.

The Runway 16-34 RSA projects will be completed by 2015, as planned for in Alternative B4 of the EIS. Hangar No. 1 will now be demolished by 2013.

Main Avenue will be relocated by 2016 (instead of 2014) and the Runway 5-23 extension will be completed by 2017 (instead of 2015). The Winslow Park ball fields will be relocated three years later with a completion date of 2015 under the Modified Alternative.

**Table A Comparison of Alternative B4 and Modified Alternative Construction Schedules**

Project	Alternative B4		Modified Alternative	
	Construction -Start	-Stop	Construction -Start	-Stop
Relocate Winslow Park	2012	2012	2013	2015
Reconstruct Delivery Drive	2013	2014	Not Required	Not Required
Relocate Airport Road	2013	2014	Not Required	Not Required
Relocate Main Avenue	2013	2014	2015	2016
Demolish Hangar No. 1	2013	2014	2013	2013
Runway 16-34 RSA	2014	2015	2013	2015
Relocate Taxiway C	2014	2014	2019	2020
Runway 5-23 Extension	2014	2015	2016	2017
South Service Area	2015	2018	Deferred	Deferred
Integrated Cargo Facility	2016	2017	Deferred	Deferred
Runway 16-34 Reconstruction	2016	2016	2019	2020
Expand Auto Parking	2017	2020	Deferred	Deferred
Mill and Overlay Runway 5-23	2017	2017	Deferred	Deferred
Terminal Expansion	2018	2020	Deferred	Deferred
Reconstruct Terminal Roadways	2019	2020	Deferred	Deferred

#### 4.3 ENVIRONMENTAL CONSEQUENCES OF THE MODIFIED ALTERNATIVE

##### Affected Environment

The FEIS Affected Environment chapter (FEIS Section 4) provided a description of the existing environmental conditions in and around the vicinity of PVD. The Modified Alternative is a scaled down version of what was identified as the EIS Selected Alternative (FEIS Section 3, ROD Section 7). The Modified Alternative remains fully located within the EIS study area. One year has elapsed since the publication of the ROD and the initiation of this Written Re-Evaluation. The actual operations at the airport have continued to lag behind the forecasted operations, but this has no effect on the need to enhance safety. No major development has occurred in the study area since the EIS. Based on our recent observations, information received from consultants gathering data in the field, and consultation with the airport sponsor, there have been no changes to the Affected Environment. Therefore, the FAA determines that:

- The data collected for the FEIS baseline is still relevant and reasonably representative of existing conditions at the time of this Written Re-Evaluation because conditions have not changed in and around the vicinity of PVD.
- The Project Area, as defined in Chapter 4 of the FEIS has not changed, nor have the Study Areas as defined in the environmental category section of Chapter 4 changed.

##### Environmental Consequences

Pursuant to the requirements of FAA Orders 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions, and 1050.1E, Environmental Impacts, Policies and Procedures, the FAA has reviewed the environmental consequences of the Modified Alternative and compared them to the environmental consequences of the selected alternative to examine if the data and the analysis in the FEIS are still substantially valid, and to examine whether there are any new

significant circumstances or information from those disclosed in the FEIS requiring additional NEPA analysis. This Written Re-Evaluation also determines whether pertinent conditions and requirements of the prior approval have, or will be, met with the modifications to the selected alternative (or Project).

The FAA examined and disclosed the environmental impacts of the no-action and two action alternatives in the years 2015, 2020 and 2025. See FEIS at Section 5.1.2. The analysis in the EIS assumed that all safety enhancements would be complete by 2015. This remains accurate except for the relocation of Taxiway C which is delayed by 5 years. Delaying the relocation of Taxiway C has some temporary impacts (such as less immediate impact to wetlands) but overall the environmental impacts remain the same, just occurring at a later implementation year than discussed in the FEIS.

The Runway 5-23 extension and relocation of Main Ave. will occur two years later than discussed in the ROD (Section 2). This change in the construction sequence does not change the environmental impacts. It does, however, shift the impacts to later years than disclosed in the ROD. Several other components of the Selected Alternative such as expansion of the passenger terminal and auto parking will occur as the need demands but likely beyond 2020. For purposes of this Written Re-Evaluation, it is assumed that the environmental impacts will remain as disclosed in the ROD but occur beyond 2020.

The modifications to the selected alternative relate to the Runway 16-34 safety area. These changes result in a smaller project with fewer environmental impacts. The FAA reviewed all the resource categories to examine if there were any changes as a result of the modification to the selected alternatives. The following resources have no change to the environmental impacts:

- Environmental Justice, Children's Health and Safety Risks
- Wetlands and Waterways
- Rare Species, Fish, Wildlife and Plants
- Floodplains
- Coastal Resources
- Farmlands
- Hazardous Materials
- Energy Supply, Natural Resources and Sustainable Design

## **Noise**

The noise analysis evaluates both roadway and aircraft noise to determine the number of additional new residential units and people that could be impacted by project-related noise under the Modified Alternative. This analysis evaluates the change in the program between the EIS Selected Alternative (B4) and the Modified Alternative. This analysis uses the fleet mix and the runway usage as described in the FEIS, since the Modified Alternative does not change the number or type of aircraft. See FEIS Appendix F, *Noise*, Section F.1.3.1.1, Integrated Noise Model (INM) Inputs, for detailed information on the fleet mix and runway use.

Alternative B4 and the Modified Alternative have one primary difference that affects roadway noise impacts, which is that the Modified Alternative no longer includes the partial relocation of Airport Road. The Modified Alternative will eliminate new project-related roadway noise impacts on the Runway 16 approach end. Since the Modified Alternative will not require the partial relocation of Airport Road, the roadway alignment of Airport Road will remain the same as the No-Action Alternative. No housing units will be impacted by new roadway traffic noise under the Modified Alternative and no roadway noise mitigation, such as noise berms or walls, will be required. Table B summarizes projected exterior traffic noise levels that would have been affected by partially relocated Airport Road under the 2015 Alternative B4 and Modified Alternative. As shown in Table B below,

2015 roadway noise conditions under the Modified Alternative will be the same as the 2015 No-Action Alternative.

In addition, construction of the Runway 16-34 runway safety area will remain on-Airport under the Modified Alternative and the off-Airport Partially Relocated Airport Road will not be constructed. This will reduce the impact of construction noise on the neighborhoods on the Runway 16 approach end.

**Table B 2015 Summary of Traffic Noise Impacts on the Runway 16 End**

Roadway	Neighborhood	Loudest-hour $L_{eq}$ in dBA					Total Number of Housing Units <sup>1</sup> Exposed to Noise Impact			
		Baseline 2004	No-Action 2015	FEIS Alt. B4 2015	Modified Alt. 2015	Mod. Alt. Change Relative to Baseline (dB)	Baseline 2004 <sup>2</sup>	No-Action 2015	FEIS Alt. B4 2015	Modified Alternative 2015
West side of Post Road	Hillsgrove: Elkland to Pell <sup>5</sup>	49 to 70	49 to 70	50 to 70	49 to 70	0 to 1	4	5	5	5
East side of Post Road	Lincoln Park: Tennessee Ave. <sup>5</sup>	50 to 56	51 to 56	51 to 59	51 to 56	<1	0	0	0	0
Total		-	-	-	-	-	4	5	5	5

Source: HMMH, 2009. Modified by VHB for the Written Re-Evaluation in 2012.

1 These numbers of housing units take into account the property acquisitions that are required for the roadway improvements and acquisitions for the newly created RPZ as well as Future Build and Current Part 150 VLAP noise acquisitions.

2 For baseline conditions, the number of housing units exposed to "impact" represents those residences for which baseline traffic noise levels approach or exceed the FHWA NAC for Activity Category B for the loudest hour of the day. For Partially Relocated Airport Road, the number of impacted dwelling units is due to both traffic noise levels that approach or exceed the relevant FHWA NAC and that cause a substantial increase over baseline noise levels.

3 See Figure A.4-22 in DEIS Noise Supporting Attachment A.11, *Supporting Report Graphics*.

The aircraft noise analysis depends on the runway thresholds, the fleet mix, and the runway usage. Under the Modified Alternative, the 96-foot shift of Runway 16-34 to the northwest will be eliminated. This will result in leaving the Runway 16-34 thresholds in their present location, which is the same as the No-Action Alternative evaluated in the FEIS. Both the fleet mix and the runway usage will remain as analyzed under Alternative B4 in the FEIS. In the FEIS the analysis demonstrated that the No-Action Alternative and Alternative B4 aircraft noise on the Runway 16 and 34 ends will be relatively minor and will primarily remain on-Airport. The Modified Alternative will avoid the small areas of noise increase created that would have been caused by the 96-foot runway shift to the north. Thus the aircraft-related noise impacts of the Modified Alternative are substantially the same as the No-Action Alternative.

### Compatible Land Use

The land use analysis evaluates the potential impact of noise on land use and community disruption that will result from the project. The changes in the project that affect land use include eliminating partially relocated Airport Road and maintaining Runway 16-34 south of Airport Road.

There will be no new noise impacts on the Runway 16 End as a result of the Modified Alternative; thus the Runway 16 approach end noise impacts for the Modified Alternative will be the same as anticipated for the No-Action Alternative. Communities near the Runway 34, end will experience noise levels as reported for Alternative B4 in the FEIS and ROD since the runway end will remain in the same location as Alternative B4. Because no new noise impacts are expected under the Modified Alternative, no new noise related land use impacts are expected.

Without the relocation of Airport Road and the shift of Runway 16-34 to the north, the Modified Alternative reduces impacts to the community north of the airport. Fewer properties will be acquired altogether and no properties will be acquired north of Airport Road. Tables C and D below illustrate that the Modified Alternative will eliminate the need to acquire three residential parcels (one unit) and twenty-three commercial parcels (twelve businesses) on the Runway 16 approach end, when



compared to Alternative B4. The No-Action Alternative would not include mandatory land acquisition for construction or voluntary land acquisition in the Runway Protection Zone. It will include on-going voluntary land acquisition under the Part 150 Program. Thus the community disruption associated with the Modified Alternative is similar to the No-Action Alternative and substantially less than B4.

**Table C 2020 FEIS Alternative B4 and Modified Alternative Land Acquisitions (Parcels)**

Land Use	Construction (Mandatory) <sup>1</sup>		Noise Mitigation on Runway 5 and 23 Ends (Voluntary)		FAA-Recommended RPZ Clearing (Voluntary) <sup>2</sup>		Total	
	Alt. B4	Modified Alternative	Alt. B4	Modified Alternative	Alt. B4	Modified Alternative	Alt. B4	Modified Alternative
Residential	16	13	77	77	64	64	157	154
Commercial <sup>3</sup>	23	0	NA	NA	0	0	23	0
<b>Total</b>	<b>39</b>	<b>13</b>	<b>77</b>	<b>77</b>	<b>64</b>	<b>64</b>	<b>180</b>	<b>154</b>

Sources: RIGIS; Field verification by VHB, Inc., 2005; City of Warwick Assessor's Parcel Data.

Notes: All acquisitions are within the City of Warwick.

NA Not Applicable. According to the FAA, commercial land uses are compatible with airport operations and, therefore, are not eligible for noise-related acquisition.

1 The change in acquisitions for construction is associated with Runway 16 End improvements. These will be confirmed through final design.

2 All RPZ clearing is proposed for the Runway 5 End. There are no Runway 23 End RPZ-related land acquisitions because the Alternative B4 Runway 23 End RPZ would remain in the same location as the No-Action Alternative Runway 23 End RPZ. RPZ clearing is FAA-recommended, not required and, therefore, RPZ-related property acquisition would be subject to funding availability.

3 Includes commercial (sale of products and services) and commercial and industrial mixed land use categories.

**Table D 2020 FEIS Alternative B4 and Modified Alternative Land Acquisitions (Units)**

Land Use	Construction (Mandatory)		Noise Mitigation on Runway 5 and 23 Ends (Voluntary)		FAA-Recommended RPZ Clearing (Voluntary) <sup>2</sup>		Total	
	Alt. B4 <sup>1</sup>	Modified Alternative	Alt. B4	Modified Alternative	Alt. B4	Modified Alternative	Alt. B4	Modified Alternative
Residential	11 units	10 units	69 units	69 units	60	60	140 units <sup>3</sup>	139 units <sup>3</sup>
Commercial <sup>3</sup>	12 businesses	0 businesses	NA	NA	0	0	12 businesses	0 businesses
<b>Total</b>	<b>11 units,</b> <b>12 businesses</b>	<b>10 units,</b> <b>0 businesses</b>	<b>69 units,</b> <b>0 businesses</b>	<b>69 units,</b> <b>0 businesses</b>	<b>60</b>	<b>60</b>	<b>140 units,<sup>4</sup></b> <b>12 businesses</b>	<b>139 units,<sup>4</sup></b> <b>0 businesses</b>

Sources: RIGIS; Field verification by VHB, Inc., 2005; City of Warwick Assessor's Parcel Data.

Notes: All acquisitions are within the City of Warwick.

NA Not Applicable. According to the FAA, commercial land uses are compatible with airport operations and, therefore, are not eligible for acquisition for noise mitigation.

1 One mandatory acquisition of a residential unit associated with Runway 16 End improvements.

2 All RPZ clearing is proposed for the Runway 5 End. There are no Runway 23 End RPZ-related land acquisitions because the Alternative B4 Runway 23 End RPZ would remain in the same location as the No-Action Alternative Runway 23 End RPZ. RPZ clearing is FAA-recommended, not required and, therefore, RPZ-related property acquisition would be subject to funding availability.

3 Includes commercial (sale of products and services) and commercial and industrial mixed land use categories.

4 An additional six units would be acquired under FEIS Alternative B4 and the Modified Alternative by 2025 (residential units within the 2025 70 dB contour).

## Social and Socioeconomic

The Social and Socioeconomic impact analysis evaluates the impact of the projects on residential properties, businesses, jobs, and taxes. The changes in the project that affect socioeconomic impacts include eliminating partially relocated Airport Road maintaining Runway 16-34 south of Airport Road, deferring the integrated cargo facility, and the changes in the construction sequencing.

Without the relocation of Airport Road and the shift of Runway 16-34 to the north, the Modified Alternative eliminates land acquisition impacts to twelve businesses and one residential unit north of the airport (see Tables C and D above). Since none of these businesses will need to be relocated under the Modified Alternative, none of these jobs will be lost. This includes 28 jobs that are considered most threatened because they would not likely have been relocated. Of the most threatened jobs and businesses, over \$4 million dollars in taxable business revenue that would have

been eliminated under Alternative B4, but will still continue to be collected by the City of Warwick under the Modified Alternative. The \$157,000 in annual property taxes to the City of Warwick that would have been eliminated under Alternative B4 will continue to be paid to the City under the Modified Alternative.

As described above, the Modified Alternative also eliminates the need to acquire one residential property on the Runway 16 approach end.

**Table E Alternative B4 and Modified Alternative: Economic Impacts (Losses) in 2015 due to Business Displacement for Construction (Mandatory)**

Type Business	Total Affected			
	Alternative B4		Modified Alternative	
	Businesses <sup>1</sup>	Jobs	Businesses	Jobs
Agriculture	0	0	0	0
Health Care	0	0	0	0
Manufacturing	1	7	0	0
Other Services	3	6	0	0
Restaurant	3	34	0	0
Retail	2	5	0	0
Warehouse	3	7	0	0
<b>Total</b>	<b>12</b>	<b>59</b>	<b>0</b>	<b>0</b>

Type Business	Most Threatened Businesses <sup>2</sup>					
	Alternative B4			Modified Alternative		
	Businesses <sup>1</sup>	Jobs	Taxable Business Revenues	Businesses	Jobs	Taxable Business Revenues
Agriculture	0	0	\$0	0	0	\$0
Manufacturing	1	7	(\$1,428,000)	0	0	\$0
Warehouse	2	7	(\$385,000)	0	0	\$0
<b>Total Direct Impacts</b>	<b>NA</b>	<b>14</b>	<b>(\$1,813,000)</b>	<b>NA</b>	<b>0</b>	<b>\$0</b>
<b>Total Impacts in Warwick<sup>3</sup></b>	<b>NA</b>	<b>23</b>	<b>(\$3,243,000)</b>	<b>NA</b>	<b>0</b>	<b>\$0</b>
<b>Total Impacts in RI<sup>4</sup></b>	<b>NA</b>	<b>28</b>	<b>(\$4,031,000)</b>	<b>NA</b>	<b>0</b>	<b>\$0</b>

Sources: Warwick Assessors Data Base and site visits to document no. of businesses, Dunn & Bradstreet, Urban Land Institute & Energy Info. Admin. to estimate direct employment. RI Dept. of Labor & Training to calculate wages per job. IMPLAN modeling calibrated for Warwick and RI to estimate total impacts. EDR Group.

Notes: All displacement due to construction would occur in 2015 due to Runway 16 and the Partially Relocated Airport Road. Subsequent acquisitions are small parts of parcels that do not affect the businesses or jobs.

NA No building square footage is associated with property (i.e., the lot of a car rental place), or no businesses or jobs are associated with square footage.

1 Businesses displaced due to land acquisition of commercial properties for Partially Relocated Airport Road and the shifting Runway 16-34 to the north.

2 Businesses and jobs unlikely to relocate within the City of Warwick due to limited vacant and developable industrial lands.

3 Total Impacts include direct and indirect impacts using multiplier effects.

4 Total Impacts in Rhode Island include total impacts in the City of Warwick.

The reduced number of projects under the Modified Alternative and reduced construction activity will result in fewer construction jobs than anticipated in the EIS due to the elimination of projects, deferring projects, and fewer construction jobs annually due to the extended construction phasing schedule.

The construction jobs associated with the Runway 16-34 RSAs and the Hangar No. 1 demolition will remain as accounted for under Alternative B4 in the EIS and ROD, although the Hangar No. 1 demolition will occur one year earlier. As described in Section 4.2, *Construction Sequencing*, Airport Road and Delivery Drive will not be relocated, therefore, the jobs associated with these projects will not be added. The construction jobs associated with the Taxiway C relocation and 16-34 reconstruction will be delayed until 2019-2020.

Projects such as the integrated cargo facility, south service area, auto parking, terminal expansion, and terminal roadways will be deferred to future dates, as demand for these facilities require. The related construction jobs will be deferred until these projects are needed.

The changes in the construction phasing schedule for the Modified Alternative will extend the construction jobs associated with the Runway 5-23 extension into 2017, instead of 2015 under Alternative B4. The Main Avenue construction will occur in 2016 (instead of 2014) and the Runway 5-23 extension construction will be completed by 2017 (instead of 2015). The Winslow Park ball fields will be constructed three years later with a completion date of 2015 under the Modified Alternative. Altogether, the peak in construction jobs for Alternative B4 and the Modified Alternative will occur in the same time period in 2017/2018, but the total number of construction jobs between 2013 and 2020 will be substantially lower under the Modified Alternative. For example, during the peak in construction activity the greatest number of workmen on site under Alternative B4 would be 124 in 2018 period 4. The greatest number of workmen on site under the Modified Alternative will be 57 in 2017 period 3.<sup>2</sup> Because of the deferred projects and the revised construction sequence, construction jobs will be reduced by approximately 70-80 percent between the years 2013 and 2020.

Under the Modified Alternative, many construction jobs will be deferred beyond 2020. This will affect the temporary economic impacts from construction, as described in Table 7-1 of the ROD. If total new construction jobs decrease from the 1,335 jobs anticipated under B4 to the Modified Alternative's 277 jobs, the previously anticipated increase in personal income would be reduced from \$58.3 million to \$13.1 million and new statewide business revenue would be reduced from \$157.8 million to \$29.7 million.

### **Environmental Justice, Children's Health and Safety Risks**

The environmental justice, children's health and safety risks analysis evaluates significant impacts to determine if they would have a disproportionate impact on environmental justice communities or children. Disproportionate impacts to environmental justice populations and children's health and safety are considered only for resources for which significant adverse impacts were identified.

As documented in the FEIS (Section 5.5), Alternative B4 would not result in significant impacts to air quality, drinking water, recreational waters, or other products or substances that a child might come into contact with or ingest. Therefore, the Modified Alternative, which has a smaller area of impact, will also not result in any health or safety impacts to children, including any that are disproportionate to such impacts on the general population.

The EIS analysis demonstrated that while there would be significant noise and compatible land use impacts as well as relocation of residences and businesses associated with Alternative B4, the effects of these impacts on minority and low-income populations would not, for either minority groups or low-income groups, be disproportionate. The Alternative B4 environmental justice-related impacts, therefore, were not considered significant. The area of reduced noise (and compatible land use) impacts on the Runway 16 approach end includes one residential building, and does not include an environmental justice community. The changes from B4 to the Modified Alternative would not change the findings of the EIS analysis.

### **Surface Transportation**

The EIS Selected Alternative (B4) and the Modified Alternative have only one difference that effects surface transportation. Airport Road was to be relocated and a new intersection with Post Road was to be constructed north of the present intersection. This relocation is not required for the Modified

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<sup>2</sup> 60 workmen would be on-site in 2013 period 3 under the Modified Alternative, but the two periods adjacent to this have reduced construction activity/jobs and therefore would not be considered a major peak in construction activity.

Alternative. Under the Modified Alternative, the physical layout of Airport Road and Post Road does not change. The **layout** is identical to the EIS No-Action alternative, but the **roadway traffic** is identical to B4. This surface transportation analysis takes the B4 road traffic and puts it on the No-Action roadway layout, as this would predict the traffic impacts of the Modified Alternative.

Airport Road relocation would have created some ancillary improvements to the surface transportation network. The relocated intersection would have included improved left turn lanes and improved geometrics (i.e. wider lanes). These improvements would have provided an enhanced Level of Service (LOS) at the intersection, as discussed below.

In the Modified Alternative, the existing intersection is not changed. Thus, the effect of the increased traffic on the existing intersection needs to be reviewed, to see if this activity will create a significant environmental impact. As noted in the FEIS (Section 5.6.2.1) a surface transportation action is significant when “the action will cause disruption in local traffic patterns that will substantially reduce the LOS of roads serving the Airport and surrounding communities”.

This brief analysis focuses on long-term (2025) traffic impacts, as they will be most substantial. Table F summarizes the peak period (morning and afternoon) LOS of the Airport Road/Post Road intersection for No-Action and Alternative B4.

**Table F Peak Period Levels of Service (LOS)**

Period	No-Action	Alternative B4
Weekday Morning	D	C
Weekday Afternoon	E	E

Source: Table H.2-13, EIS Appendix H

Note that in both alternatives, the weekday afternoon peak period has a LOS E. The LOS E is associated with highly congested roadways and intersections.

The traffic volumes forecast for this intersection were studied to see if the change to the Modified Alternative will significantly impact the intersection’s LOS. Tables G and H summarize the 2025 traffic volumes for this intersection. Note that through traffic (i.e. Post Road SB and Post Road NB) are not considered here; intersection LOS is typically defined by turning traffic.

**Table G Peak Hour Traffic – Weekday Morning**

Traffic Movement	No-Action	Alt. B4	% Change
Post Road SB Left Turns	730	730	0
Post Road NB Right Turns	500	540	8.0
Airport Road WB Left Turns	940	955	2.7
Airport Road WB Right Turns	1020	1020	0

S-Southbound, NB-Northbound, WB-Westbound

Source: Figure H.1-10, EIS Appendix H

**Table H Peak Hour Traffic – Weekday Afternoon**

Traffic Movement	No-Action	Alt. B4	% Change
Post Road SB Left Turns	1100	1100	0
Post Road NB Right Turns	945	995	5.3
Airport Road WB Left Turns	830	900	8.4
Airport Road WB Right Turns	865	865	0

B-Southbound, N-Northbound, WB-Westbound

Source: Figure H.1-10, EIS Appendix H

Placing the traffic associated with Alternative B4 on the existing Post Road/Airport Road intersection will slightly increase peak hour traffic volumes. However:

- There is no increase above 9 percent;
- In two cases (Post Road SB left turns and Airport Road WB right turns) there is no increase;
- The increase in the peak hours for Post Road NB right turns is not significant, since right turn movements do not dictate this intersection's LOS;
- The 2.7% increase in traffic for Airport Road WB left turns will not change the LOS at the interchange above the existing LOS D

The most substantial traffic increase is for Airport Road WB left turns in the afternoon peak hour. However, this intersection already has an E LOS for that time in the No-Action alternative. An increase of 8.4% is not anticipated to cause disruptions in local traffic, and will not degrade the LOS to LOS F.

The slight increase in traffic placed on the existing intersection should not substantially reduce the LOS of roads serving the Airport and surrounding communities and thus will not result in significant impact. The findings in the EIS are unchanged.

### **Air Quality**

Construction-related emissions were initially analyzed as part of the EIS Air Quality Assessment for Alternative B4 (Section 5.7). The results were expressed as an emissions inventory and compared to the applicable *de-minimis* thresholds of the Clean Air Act General Conformity Rule. The results of the emissions inventory calculations demonstrated that the emissions associated with the project were below the Clean Air Act thresholds and therefore conformed to the State Implementation Plan (SIP).

This analysis compares the construction emissions from Alternative B4 and the Modified Alternative. This analysis is based on the construction equipment and manpower schedules developed for the Modified Alternative. The revised construction equipment and manpower schedules for the Modified Alternative were input into the analysis and the data were then combined with appropriate emission factors obtained from the U.S. Environmental Protection Agency (EPA) NONROAD and MOBILE6.2 emissions models to obtain estimates of annual emissions of carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), sulfur oxides (SO<sub>x</sub>), particulate matter (PM<sub>10/2.5</sub>) and volatile organic compounds (VOC). Because of the current ozone (O<sub>3</sub>) non-attainment designation for Rhode Island, the precursor pollutants of NO<sub>x</sub> and VOCs are of primary concern.

The principal difference between Alternative B4 and the Modified Alternative that affects construction-related air emissions is that the Modified Alternative no longer includes the partial relocation of Airport Road, and the schedule for several other supporting projects has changed.

As shown, construction emissions associated with Alternative B4 are provided in Table I and extend from 2013 through 2020. The years of 2014, 2015, and 2016 are estimated to have the highest construction emissions for all pollutants analyzed due to the amount of construction equipment utilized in these time periods. However, the maximum annual construction emissions of VOC and NO<sub>x</sub> (the two pollutants of principal concern) are 3.9 and 38.3 tons, respectively; values that are well within the General Conformity *de-minimis* thresholds of 50 and 100 tons per year.

**Table I Alternative B4: Construction Emissions Inventory (tons per year)**

Pollutant	Construction Year							
	2013	2014	2015	2016	2017	2018	2019	2020
CO	4.0	18.9	18.6	17.8	15.5	16.8	9.3	7.6
VOC	0.6	3.8	3.3	3.9	2.5	2.6	1.3	1.2
NO <sub>x</sub>	6.6	38.3	32.5	31.6	18.0	16.6	7.4	6.1
SO <sub>x</sub>	<0.1	0.1	0.1	0.1	0.1	0.1	<0.1	<0.1
PM <sub>10</sub>	5.1	6.8	6.5	6.4	5.7	5.6	5.1	5.0
PM <sub>2.5</sub>	0.8	2.3	2.1	1.9	1.3	1.2	0.8	0.7

Source: Final Environmental Impact Statement T.F. Green Airport Improvement Program, July 2011 (Table 5-88).

For comparative purposes, annual construction emissions associated with the Modified Alternative are provided in Table J. As shown, the Modified Alternative construction schedule extends from 2013 through 2020. Notably, the years of 2013 and 2017 are estimated to have the highest construction emissions for all pollutants analyzed due to the amount of construction equipment used in these periods. However, these maximum construction emissions of VOC and NO<sub>x</sub> are 1.5 and 10.8 tons; values well within the General Conformity applicability thresholds for VOC and NO<sub>x</sub> of 50 and 100 tons per year, respectively. The values are also below those anticipated under Alternative B4.

**Table J Modified Alternative: Construction Emissions Inventory (tons per year)**

Pollutant	Construction Year							
	2013	2014	2015	2016	2017	2018	2019	2020
CO	5.9	1.0	5.0	5.3	7.6	0	6.0	1.6
VOC	1.0	0.1	0.9	0.8	1.5	0	1.5	0.4
NO <sub>x</sub>	10.8	1.4	7.9	6.7	10.7	0	8.2	1.9
SO <sub>x</sub>	<0.1	<0.1	<0.1	<0.1	<0.1	0	<0.1	<0.1
PM <sub>10</sub>	5.3	4.8	5.2	5.1	5.3	0	5.1	4.8
PM <sub>2.5</sub>	1.0	0.5	0.9	0.8	0.3	0	0.8	0.5

Source: KB Environmental Sciences, Inc., 2012.

Based upon the results of this analysis, total construction-related emissions associated with the Modified Alternative are much less (approximately 30 percent for VOC and NO<sub>x</sub> by comparison) than the B4 Alternative and are well with the applicable de-minimis thresholds of the CAA General Conformity Rule. This outcome confirms that the requirements of the General Conformity Rule do not apply to the Modified Alternative, the project-related construction emissions conform to the SIP, and no further analysis is required.

### Historical, Architectural, Archaeological, and Cultural Resources

The FEIS disclosed significant impacts to historic resources under National Environmental Policy Act (NEPA), as well as “adverse effects” under the National Historic Preservation Act (NHPA), in Section 5.8. These impacts included:

- Diminished public view of an eligible historic district, caused by relocation of Airport Rd.
- Alteration of the historic runway/taxiway configuration, which is part of the eligible district.
- Demolition of Hangar 1, which is eligible for the National Register and part of the eligible district.

- Taking of land for placement of a cargo building. The land currently serves as landscaping around the former airport terminal building (a National Register property).
- Diminished public view of the former airport terminal, caused by relocation of Airport Road.
- Direct and potential impacts to historic cemeteries. These were considered “significant impacts” under NEPA, but not “adverse effects” under the NHPA since the cemeteries are not deemed eligible for the National Register of Historic Places.

Modification of the EIS Selected Alternative avoids the need to relocate Airport Road. If Airport Road is not relocated there is no loss of view of the eligible historic district or the historic airport terminal. Retaining Airport Road in its current location makes it impossible to locate a new cargo facility in this location. The direct impacts to the historic airport terminal can thus be avoided. The need for the proposed cargo facility was to be driven by increased demand, which has not yet materialized. As there is no current need for the cargo facility, the location/design is unknown. If a cargo facility is proposed by RIAC in the future, it will be given appropriate review under NEPA and NHPA, and coordination with the State Historic Preservation Officer (SHPO). Overall, the impacts to historic resources are less, with the Modified Alternative. Additional consultation with the SHPO and other parties will be conducted as anticipated in the EIS and MOU.

### **Section 4(f) and 6(f) Resources**

Section 4(f) of the DOT Act protects various public resources from transportation projects; notably historic properties, public parks and wildlife refuges. See the description above for a discussion of historic properties, which are also protected under Section 4(f). The public parks (protected by Section 4(f) of the DOT Act and Section 6(f) of the Land and Water Conservation Act) impacted by the project include the recreation complex known as Winslow Park. The Park includes several softball and soccer fields, with associated parking and concessions. Impacts to these facilities are caused by the extension of Runway 5-23, not the Runway 16-34 safety enhancements that are the subject of this Written Re-Evaluation.

The EIS contemplated relocating most, or all, of the fields to the Cedar Swamp Road site (See FEIS Table 7-1). After the issuance of the 2011 Record of Decision, the City of Warwick and RIAC negotiated an agreement that included, among other things, the relocation plan for Winslow Park. The negotiations addressed the disposition of the last two (smaller) softball fields as all the fields in Winslow Park function as one complex. The negotiations concluded that the relocation site will remain as depicted in the EIS. It is assumed all the recreation fields will be relocated in the area as shown on FEIS Figure 7-10. If there are substantive changes to the relocation plan, the FAA will take the necessary steps to ensure compliance with Section 4(f) of the DOT Act. The data and findings in the EIS are unchanged, with regard to Winslow Park.

### **Wetlands and Waterways**

Some impacts will be delayed due to changes in the implementation schedule, but overall there will be no change from the impacts disclosed in Section 5.10 of the FEIS.

### **Water Quality**

The modifications that affect water quality include the elimination of the Airport Road relocation, the elimination of the Runway 16-34 shift to the north, and changes to on-airport paved areas (such as the perimeter road). The Modified Alternative will reduce the total new impervious area.

Table K shows the changes in impervious area within the affected drainage areas. Compared to Alternative B4, the Modified Alternative will substantially decrease the total impervious area by 8.7 acres, as a result of a decrease in the Buckeye Brook North drainage area (a decrease of 12.4 acres), and an increase in the Buckeye Brook South drainage area (an increase of 3.8 acres).

**Table K Impervious Surfaces by Drainage Area**

Drainage Area	Impervious Area (acres) <sup>1</sup>			Change in Impervious Area (acres) <sup>2</sup>		
	No-Action	Alt. B4	Modified Alt.	Alternative B4	Modified	Modified
				Compared to No-Action	Alternative Compared to No-Action	Alternative Compared to Alternative B4
Buckeye Brook North	237.0	258.9	246.5	21.9	9.5	(12.4)
Warwick Pond	11.7	12.9	12.8	1.2	1.1	(0.1)
<u>Buckeye Brook South</u>	<u>161.6</u>	<u>196.5</u>	<u>200.3</u>	<u>34.9</u>	<u>38.7</u>	<u>3.8</u>
<b>Mill Cove (cumulative)<sup>3</sup></b>	<b>410.3</b>	<b>468.3</b>	<b>459.6</b>	<b>58.0</b>	<b>49.3</b>	<b>(8.7)</b>
Tuscatucket Brook	35.0	49.6	49.6	14.6	14.6	0.0
<u>Callahan Brook</u>	<u>24.3</u>	<u>21.9</u>	<u>21.9</u>	(2.4)	(2.4)	0.0
<b>Brush Neck Cove (cumulative)<sup>4</sup></b>	<b>59.3</b>	<b>71.5</b>	<b>71.5</b>	<b>12.2</b>	<b>12.2</b>	<b>0.0</b>
<b>Total</b>	<b>469.6</b>	<b>539.8</b>	<b>531.1</b>	<b>70.2</b>	<b>61.5</b>	<b>(8.7)</b>

Source: VHB, Inc.

1 Portions of the watersheds that fall within the maximum combined footprint of the Alternatives (including both on and off Airport areas).

2 Includes existing pavement, proposed pavement, and impervious surfaces from land acquisitions. Existing roadways were assumed to remain impervious.

3 The Mill Cove drainage area consists of the combined Buckeye Brook North, Warwick Pond, and Buckeye Brook South drainage areas evaluated in this analysis.

4 The Brush Neck Cove drainage area consists of the combined Tuscatucket Brook and Callahan Brook drainage areas evaluated in this analysis.

Table L shows that the Modified Alternative will result in a 0.7 acre decrease to the total area of roadways and parking compared to Alternative B4 as a result of the elimination of paving from the integrated cargo facility in the Buckeye Brook North Drainage Area. The partial relocation of Airport Road will be eliminated with the Modified Alternative, reducing the new pavement area. The construction of any new impervious areas will be designed to meet the *2010 Rhode Island Stormwater Design and Installation Standards Manual* and therefore will not adversely affect water quality.

**Table L Impervious Roadway and Parking Areas by Drainage Area<sup>1</sup>**

Drainage Area	No-Action	Alternative B4	Modified Alternative	Change in Roadway and Parking Area (acres) <sup>2</sup>		
				Alternative B4	Modified Alt.	Modified Alt.
				Compared to No-Action	Compared to No-Action	Compared to Alternative B4
Buckeye Brook North	106.8	106.8	106.2	0.0	(0.6)	(0.6)
Warwick Pond	0.8	0.8	0.9	0.0	0.1	0.1
<u>Buckeye Brook South</u>	<u>50.5</u>	<u>51.5</u>	<u>51.3</u>	<u>1.0</u>	<u>0.8</u>	<u>(0.2)</u>
<b>Mill Cove (cumulative)<sup>3</sup></b>	<b>158.1</b>	<b>159.1</b>	<b>158.4</b>	<b>1.0</b>	<b>0.3</b>	<b>(0.7)</b>
Tuscatucket Brook	21.0	18.5	18.5	(2.5)	(2.5)	0.0
<u>Callahan Brook</u>	<u>19.1</u>	<u>20.6</u>	<u>20.6</u>	1.5	1.5	0.0
<b>Brush Neck Cove (cumulative)<sup>4</sup></b>	<b>40.1</b>	<b>39.1</b>	<b>39.1</b>	<b>(1.0)</b>	<b>(1.0)</b>	<b>0.0</b>
<b>Total</b>	<b>198.2</b>	<b>198.2</b>	<b>197.5</b>	<b>0.0</b>	<b>(0.7)</b>	<b>(0.7)</b>

Source: VHB, Inc.

1 The areas in this table represent the portions of the watersheds that fall within the maximum combined footprint of the Alternatives (including both on- and off-Airport areas). Totals are rounded. Existing roadways were assumed to remain impervious.

2 The roadway and parking areas are a subset of the impervious areas referred to in Table 5-116 (e.g., 198.2 acres of the 539.8 acres total impervious acres are attributed to parking and roadway surfaces).

3 The Mill Cove drainage area consists of the combined Buckeye Brook North, Warwick Pond, and Buckeye Brook South drainage areas evaluated in this analysis.

4 The Brush Neck Cove drainage area consists of the combined Tuscatucket Brook and Callahan Brook drainage areas evaluated in this analysis.



Table M shows that the Modified Alternative will result in a small reduction in the total pollutant load when compared to Alternative B4. Infiltrating stormwater BMPs and pervious surfaces located between impervious surfaces (taxiways and runways) and the stormwater collection system for the Airport Improvement Program will still effectively mitigate pollutant loading impacts in receiving waters of Spring Green Pond, Buckeye Brook, and Warwick Pond.

**Table M Annual Pollutant Loading by Drainage Area<sup>1</sup> (Modified Alternative)**

Drainage Area	Pollutant <sup>2</sup> (mg/l)									Percentage Change from No-Action	Percentage Change from B4
	TSS	P	N	Cu	Pb	Zn	BOD	COD	Bacteria		
Buckeye Brook North	46,186	77	708	0	11	16	2,463	30,790	523,437	0.3%	(0.4%)
Warwick Pond	2,122	4	33	0	0	1	113	1,414	24,045	13.5%	(0.1%)
Buckeye Brook South	<u>35,556</u>	<u>59</u>	<u>545</u>	<u>0</u>	<u>8</u>	<u>12</u>	<u>1,896</u>	<u>23,704</u>	<u>402,970</u>	1.4%	(0.1%)
Mill Cove (cumulative) <sup>3</sup>	<b>83,863</b>	<b>140</b>	<b>1,286</b>	<b>1</b>	<b>20</b>	<b>29</b>	<b>4,473</b>	<b>55,909</b>	<b>950,452</b>	1.0%	(0.1%)
Tuscatucket Brook	12,184	20	187	0	3	4	650	8,122	138,080	11.0%	0.0%
Callahan Brook	<u>8,596</u>	<u>14</u>	<u>132</u>	<u>0</u>	<u>2</u>	<u>3</u>	<u>458</u>	<u>5,731</u>	<u>97,424</u>	(12.9%)	0.0%
Brush Neck Cove (cumulative) <sup>4</sup>	<b>20,780</b>	<b>35</b>	<b>319</b>	<b>0</b>	<b>5</b>	<b>7</b>	<b>1,108</b>	<b>13,853</b>	<b>235,505</b>	(0.3%)	0.0%
<b>Total</b>	<b>104,643</b>	<b>174</b>	<b>1,605</b>	<b>1</b>	<b>24</b>	<b>36</b>	<b>5,581</b>	<b>69,762</b>	<b>1,185,957</b>	0.8%	(0.1%)

Source: VHB, Inc. TSS = Total Suspended Solids, P = Phosphorus, N = Nitrogen, Cu = Copper, Pb = Lead, Zn = Zinc, BOD = Biological Oxygen Demand, and COD = Chemical Oxygen Demand.

1 A Highway Land Use Category was assumed the most appropriate Land Use Category for T.F. Green to determine the Event Mean Concentrations (EMCs) values. Other categories include Residential, Commercial, Industrial, and Undeveloped/Rural.

2 The pollutants loading listed in this table represent the potential annual loading rate for the five drainage areas, totaling 1,360 acres, without the installation of stormwater BMPs. Pollutants were calculated using the Simple Method (Schuster, 1987) which requires estimates of annual rainfall, site impervious cover, land use type, and pollutant loading coefficients based on land use. Totals are rounded.

3 The Mill Cove drainage area consists of the combined Buckeye Brook North, Warwick Pond, and Buckeye Brook South drainage areas evaluated in this analysis.

4 The Brush Neck Cove drainage area consists of the combined Tuscatucket Brook and Callahan Brook drainage areas evaluated in this analysis.

## Floodplains

Impacts to FEMA-regulated floodplain for Alternative B4 are reported in the FEIS section 5.14, Table 5-126 as 2.3 acres of FEMA-designated floodplain area filled and 726 cubic yards of fill below the flood elevation (see Table N below and FEIS Section 4.13 and Figures 4-30 and 5-46).

**Table N Summary of Impacts to Estimated Floodplains**

Associated Action	Floodplain Area	Alternative B4		Modified Alternative B4	
		Area (acres)	Storage Vol. (cubic yds)	Area (acres)	Storage Vol. (cubic yds)
Runway 23 End and Access Road	A	0.0	0	0.0	0
Runway 34 End	B	2.3	726	2.3	726
	C	0.0	0	0.0	0
<b>Total</b>		<b>2.3</b>	<b>726</b>	<b>2.3</b>	<b>726</b>

The program elements eliminated or modified do not change the area or volume of floodplain impacted. The relocation of Taxiway C and the Perimeter Road west of Taxiway C do not impact FEMA floodplain, so delaying these safety enhancements under the Modified Alternative will not change the floodplain impacts. Therefore data and findings in the EIS with respect to impacts to federal floodplain under the Modified Alternative are the same as Alternative B4.

Appendix L of the FEIS provided a HEC-RAS model analysis of state-regulated floodplain on the Airport.<sup>3</sup> Output from this model may change with the elimination of fill associated with the relocation of Taxiway C. This model will be revised to support an Application to Alter Freshwater Wetlands to be filed with the Rhode Island Department of Environmental (RIDEM) Management Office of Water Resources for safety enhancements proposed under the Modified Alternative once the final design is complete.

FEIS Section 6.13.1 describes mitigation for floodplain impacts (flood storage volumes filled below elevation 14 feet NAVD 88, the FEMA regulated base flood elevation). Mitigation for floodplain impacts associated with Runway 34 safety enhancements will be achieved through the addition of floodplain storage in the upland area south of Runway 34, as described in Section 6.9, *Wetlands and Waterways*, for Mitigation Site 1. As part of the wetland permitting process, Mitigation Site 1 has recently been reduced from 3.0 acres to 2.4 acres to avoid the need to excavate unsuitable materials, and Mitigation Site 14 was added. Mitigation Site 14 proposes to excavate approximately 0.2 acres of floodplain fill adjacent to Buckeye Brook near the Runway 34 End as wetland and floodplain compensation.

### **Coastal Resources**

The Rhode Island Coastal Resources Management Council (CRMC) issued a Coastal Zone Consistency Determination for the EIS Selected Alternative on June 28, 2012. The modifications to the project occur in the Seekonk and Providence River watersheds (see FEIS Figure 4-24). The coastal zone and coastal barriers are unaffected by these modifications (see FEIS figures 4-31 and 4-32). All changes to the project are located outside the Greenwich Bay Watershed and the Greenwich Bay Special Management Area, and are not anticipated to have an effect on the coastal zone determination. Additional coordination with the CRMC will be completed by RIAC, if needed.

### **Farmlands**

There is no prime farmland in the vicinity of the project, but there are farmlands of statewide importance impacted by the Runway 16-34 safety projects. Near the Runway 34 approach end these soils are mapped as poorly drained, wetlands. Near the Runway 16 approach end these soils are currently developed urban areas, so the impacts on these soil types could be disregarded when quantifying impacts to farmland. As a result, the EIS Selected Alternative had no direct or indirect impact on farmland of statewide importance. See FEIS page 5-255 and EIS figures 4-33 and 5-48.

The Modified Alternative will eliminate the impacts to the urban, developed farmlands of statewide importance near the Runway 16 approach end. This area currently houses a rental car facility, rendering this benefit insignificant.

### **Hazardous Materials, Pollution Prevention, and Solid Waste**

The Runway 16-34 safety area required the relocation of Airport Road in the vicinity of numerous "Oil and Hazardous Material Management Areas." No actual disturbance of hazardous materials was anticipated. See FEIS sections 4.16 and 5.17, as well as EIS figures 4-35 and 5-49. The Modified Alternative eliminates the relocation of Airport Road. As the road relocation has been eliminated, the potential for any unanticipated disturbance of hazardous materials by the road relocation has also been eliminated.

The EIS Selected Alternative relocates Taxiway C away from Runway 16-34 and closer to the Truk Away Landfill (See FEIS figures 4-36 and 5-49). This component of the project will be deferred to a

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<sup>3</sup> The RIDEM Freshwater Wetlands Program regulates floodplain along smaller rivers and waterways and that are not shown on FEMA Flood Insurance Rate Maps.

later date, making the project more affordable in the near term. This relocation was specifically designed to avoid disturbing the landfill, and remains as it was in the EIS. No change in impacts is anticipated by this change in the timing.

There are no hazardous materials impacted by the Runway 16-34 safety area, or by the changes to the project. The data and findings in the EIS are unchanged.

### **Light Emissions and Visual Impact**

The EIS Selected Alternative resulted in some visual change to the Runway 16 end, but these changes were not found to be significant. See FEIS sections 4.17 and 5.18. The Modified Alternative avoids the relocation of Airport Road, resulting far fewer visual impacts. The findings in the EIS are unchanged.

### **Construction Impacts**

The Modified Alternative results in a smaller construction project, phased over a slightly longer period of time. A smaller construction project will result in reduced construction-related noise, roadway traffic, air quality emissions, and visual impacts. Construction period mitigation will be provided, regardless of the scope of the project, but a smaller project (with less simultaneous construction) will be easier to mitigate. The ROD concluded that all construction related impacts could be mitigated (Section 10.13) and this conclusion remains unchanged.

## **5. PUBLIC REVIEW AND COORDINATION**

The EIS Coordination Group, made up of all local, state and federal agencies with jurisdiction over protected resources, the City of Warwick Planning Office, the Office of the Mayor of the City of Warwick, and the Narragansett Indian Tribal Historic Preservation Office were informed of this Re-Evaluation effort on September 5, 2010. The letter sent to these agencies is shown in Attachment A. These agencies include:

- Narragansett Indian Tribal Historic Preservation Office
- Warwick Mayor's Office
- Warwick Planning Office
- RI Rivers Council
- RI Coastal Resources Management Council
- RI Statewide Planning Program
- RI Department of Health
- RI Department of Transportation
- RI State Historic Preservation Office
- RI Department of Environmental Management
- US Federal Highway Administration
- US Fish and Wildlife Service
- US Department of Housing and Urban Development
- US Army Corps of Engineers
- US Transit Authority
- US Environmental Protection Agency

An article describing the Modified Alternative - "Warwick airport scales back plans for safety improvements on secondary runway; will not relocate Airport Rd." - appeared in the *Providence Journal* on September 5, 2012. An article describing the Modified Alternative - "RIAC, FAA trim runway safety area project" - appeared in the *Warwick Beacon* on September 6, 2012.

This document – "DRAFT WRITTEN RE-EVALUATION OF JULY 2011 ENVIRONMENTAL IMPACT STATEMENT AND SEPTEMBER 23, 2011 RECORD OF DECISION" – is available for a 30 day comment period. Notice of availability of this document was published in the Federal Register and emailed to approximately 900 individuals who had provided emails during the development of the EIS.

Copies of the draft document are available for public review at all public libraries in Warwick, and at:

FAA New England Region  
12 New England Executive Park  
Burlington MA 01803

Contact: Richard Doucette at 781-238-7613 or [richard.doucette@faa.gov](mailto:richard.doucette@faa.gov).

Copies are available electronically from [Richard.Doucette@FAA.gov](mailto:Richard.Doucette@FAA.gov) or can be viewed at:  
[http://www.faa.gov/airports/new\\_england/](http://www.faa.gov/airports/new_england/)

## 6. **CONCLUSION**

Based on the above analysis, the proposed changes to the Selected Alternative conform to plans for which a prior EIS has been filed. While there are minor changes to the selected alternative, the changes reduce some impacts, but do not result in significantly different environmental impacts. The data and analyses contained in the 2011 FEIS are substantially valid. The Modified Alternative continues to meet the project's Purpose and Need, as described in the EIS (Section 2) and ROD (Section 5). Finally, the pertinent conditions and requirements of the prior approval have, or will be met in the current action.

Therefore, as discussed above and in accordance with FAA Order 1050.1E, Policies and Procedures for Assessing Environmental Impacts, and FAA Order 5050.4B, NEPA Implementing Instructions for Airport Actions, the preparation of a new or supplemental EIS is not required.

Responsible Federal Official: \_\_\_\_\_ Date: \_\_\_\_\_  
Richard P. Doucette  
Environmental Program Manager  
FAA New England Region, Airports Division  
12 New England Executive Park  
Burlington MA 01803

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## **ATTACHMENTS**

Letter to EIS Coordination Group

RSA Determination

Letter from RIAC

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U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

Federal Aviation Administration  
New England Region

12 New England Executive Park  
Burlington, MA 01803

September 5, 2012

Dear T.F.Green EIS Coordination Group Member:

The Federal Aviation Administration issued a Record of Decision (ROD) on September 23, 2011, which approved various safety and efficiency projects at T.F.Green Airport in Warwick, Rhode Island. The ROD followed an Environmental Impact Statement (EIS), which was completed on June 10, 2011.

Following the issuance of the ROD, the Rhode Island Airport Corporation (RIAC) updated the preliminary cost analyses for the various construction projects. The original estimate of approximately \$70 million had escalated to approximately \$110 million. In particular, the cost of commercial land acquisition and demolition, as well as the Engineered Material Arresting System, exceeded original estimates.

After FAA and RIAC reviewed more detailed costs, FAA and RIAC agreed that the cost of the safety improvements was not consistent with FAA guidance on acceptable costs for this type of safety improvement. The FAA and RIAC have identified a scaled-down version of the Runway 16-34 safety improvements that will achieve an acceptable level of safety, to meet FAA requirements. In an effort to better manage construction costs, some airport improvements will be phased-in over a longer time period as well. The runway extension project will remain unchanged. Attached is a preliminary graphic that shows the EIS Selected Alternative and the Modified Alternative. The most significant change is a smaller runway safety area, which allows Airport Road to remain in its current location.

This modification to the selected alternative and construction sequence was not assessed in the 2011 EIS. To ensure full compliance with the National Environmental Policy Act (NEPA), the FAA is currently evaluating the Modified Alternative and construction sequence. This Re-Evaluation follows guidance provided by FAA Environmental Orders 1050.1e and 5050.4b. Both Orders reference re-evaluating NEPA documents, when project design changes arise after the issuance of a ROD. We anticipate the EIS Re-Evaluation process could take several weeks, and should be completed this fall. At the completion of this effort, the FAA will determine if the analysis in the EIS and findings in the ROD remain substantially valid, or if additional environmental analysis is warranted.

As members of the EIS Coordination Group, we wanted to inform you of this recent development. Please do not hesitate to contact me if you have any questions or comments.

Sincerely,

Richard P. Doucette  
Environmental Program Manager, FAA New England Region

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**Runway Safety Area Determination**  
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*Runway 5-23 (Primary Runway) – Does not meet standards and not practical to improve.  
(See Exhibits 1 and 2)*

The Runway 5 End RSA (i.e. the RSA for departures/arrivals on Runway 23 and arrivals on Runway 5) currently meets dimensional standards of 500' wide by 1000'. Per the EIS and ROD, the runway is planned to be extended 1,534' to the southwest. The planned extension includes a 600' long by 500' wide graded safety area with a standard EMAS installed within the 600 feet. Given the presence of vertical guidance for Runway 5, this proposed RSA will meet safety area standards.

The Runway End 23 RSA has a corner (on the right side on approach) crossed by the perimeter fence and a major four lane arterial roadway. The fence is 920' from the threshold on the right side, on approach and crosses the 1,000' dimension from the threshold at a distance of 130' right of centerline. This encompasses about 4,800 square feet, or less than 1% of the area of a standard safety area.

This runway end will not be moved as part of the proposed airside improvements. Some of the alternatives considered in the EIS included a runway extension to the north; however, these alternatives were eliminated due to higher costs and impacts, as discussed in the EIS (Chapter 3, section 3.7).

The relocation of a part of Airport Road to improve the Runway End 23 RSA would require substantial roadway realignment; some wetland impacts could occur. Shifting the runway south would require additional residential acquisition and its associated environmental and economic impacts. Use of declared distances would reduce the effective length of the extended runway.

Absent a runway extension to the north, given that the safety area on this runway end substantially (approximately 99%) meets standards, and given the extensive costs and impacts to move the existing road, it is not practicable to further improve this safety area.

*Runway 16-34 (Secondary Runway) – Does not meet standards but can be improved.  
(See Exhibits 3 and 4)*

Runway 16-34 was studied in-depth under the referenced EIS with the possibility of shifting the runway to the northwest approximately 97 feet, causing the relocation of Airport Road. A 600' graded runway safety area on each end, which would meet criteria given vertical guidance on both runway ends, would have a standard EMAS installed.

The EIS included an estimated total project cost of \$69 M for this alternative. This cost was judged to be practicable, given that:

**Runway Safety Area Determination  
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- This runway is frequently used by the primary carrier (Southwest). As noted in Appendix F of the EIS, Runway 16-34 is used over 17% of the time annually - substantially higher than a typical crosswind or secondary runway;
- The RSA's on both runway ends were being improved;
- The size of the airport - PVD is one of two Medium Hubs in the New England Region;
- The expected financial resources of the sponsor; and
- The airport's regional importance as one that supplements Boston-Logan International Airport (BOS).

However, the ANE-600 planning and engineering staff believed that this cost represented the upper range of financial practicality.

After the ROD was approved, the Airport sponsor retained a program manager for the airside work. This firm completed revised preliminary cost for the airfield improvement projects, based on current construction costs and appraised property values. The revised cost for the RSA project was estimated to be in the range of \$100,000,000 to \$110,000,000 dollars. The primary factors that drove the change from the EIS estimate were higher costs for land acquisition, building demolition, and EMAS beds.

The FAA, in working with the airport sponsor (RIAC), the program manager, and the EIS consultant, reviewed these new estimates and found them to be appropriate. However, these revised cost estimates far exceeded the cost guidance found in FAA Order 5200.9. Therefore, the original RSA improvement proposal was determined to be financially impractical.

Given this situation, RIAC consulted with FAA to identify possible options. Based on these consultations, RIAC proposed a reduced scope project which does not require the relocation of Airport Road and keeps all improvements on existing airport property. This concept will provide a significant improvement to safety.

Runway 34 End RSA: The proposed RSA project for this runway end required the placement of fill to the southeast 600' from the relocated runway threshold and 500' wide, to the top of the slope. The runway threshold will not be shifted so as to provide the maximum runway length. This determination provides a 503 feet long and 500 foot wide graded safety area on the Runway 34 End, which will be used as follows:

- Overrun for Runway 16: A standard EMAS bed, anticipated to accommodate the most commonly used commercial service aircraft (a Boeing 737, as noted in Appendix E.3, Table E.3-1 of the EIS) at a 70 knots exit speed, will be installed. The dimensions of this EMAS bed will be determined by EMAS supplier ESCO, but is expected to be approximately 450' long x 170' wide.

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- Undershoot for Runway 34: The undershoot protection will be 503 feet. Note that there is an electronic glideslope on Runway 34 and so the touchdown point on the runway is approximately 1,000' inward from the threshold. This provides an additional measure of safety.
- Technical Note: As part of this project, the Runway 34 end and a portion of Taxiway C will be raised to address grading requirements and line of sight issues.

Runway 16 End RSA: On this end, the RSA dimensions are constrained by Airport Road, the airport service road and the localizer antenna for Runway 16 ILS.

- Overrun for Runway 34: The distance from the threshold to the localizer antenna is approximately 300 feet, so a non-standard EMAS bed of at least 250' length (and 170' width) can be installed. The final design will be completed by ESCO, but we anticipate that this EMAS bed would be able to stop a 737 or other critical aircraft traveling at 40 knots.
- Undershoot for Runway 16: This runway end has an existing displaced threshold with vertical guidance that provides for more than 600 feet of land-short area.
- Technical note: The 737 aircraft is the primary narrow body air carrier aircraft at PVD. The 737 series comprises about 50% of the total air carrier jet fleet operations and 75% of narrow body operations (Table E.3-1 of the EIS). A previous installation at Logan International Airport of an EMAS at 190' long was designed to stop a B-737 exiting the runway at between 51 to 57 knots.
- Based on this existing installation, FAA has concluded that this reduced project provides a significant improvement in safety at approximately one-half of the cost of the original proposal.

#### **RSA Cost Information**

The RIAC program manager has completed new preliminary cost estimates for the runway 16-34 RSA alternative. They estimate the total RSA costs at \$40.25 million, as summarized in Table 1. This estimate includes reasonable percentages for contingencies, cost escalation, and soft costs.

Based on FAA guidance and the other factors summarized previously, this is a reasonable cost. Therefore, FAA determines that this is a reasonable and practicable alternative and will provide a meaningful enhancement of safety.

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**Additional Documentation**

Copies of the EIS and ROD, and supplementary information on RSA costs, are on file with the FAA and can be provided upon request.

<b>Table 1. Estimated RSA Improvement Costs</b>	
<b>Runway 16 End RSA</b>	<b>Total Costs (1)</b>
• Runway Improvements	\$3,707,600
• EMAS Bed	4,528,000
• Perimeter Roadway/ New Blast Fence	2,143,400
• Navais	404,500
Total Runway 16 End	\$10,783,500
<b>Runway 34 End RSA</b>	
• Wetland Mitigation	\$2,628,300
• Runway End Improvements (2)	12,698,000
• Taxiway modification (3)	2,852,200
• EMAS Bed	8,963,000
• Perimeter Roadway	757,900
• Navais	1,561,700
Total Runway 34 End	\$29,461,100
<b>Total Estimated RSA Improvement Cost</b>	<b>\$40,244,600</b>
Hangar 1 Demolition (4)	\$3,914,300
<b>Total Estimated Cost (5)</b>	<b>\$44,158,900</b>

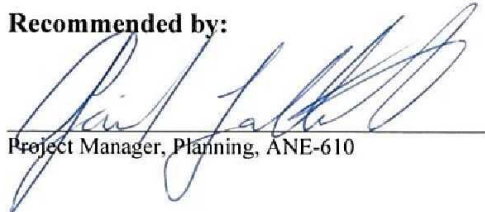
- (1) Includes construction costs, contingencies, soft costs, escalation factor  
(2) This estimate includes the runway work needed to address grading and line of sight issues, and fill on end of runway.  
(3) This is an estimate of the taxiway work needed to address grading and line of sight issue  
(4) Not required for RSA but included in program to clear object free area on Runway 16 end  
(5) This estimate is for overall cost determinations; actual grant amount to be based on final design and bids

**Runway Safety Area Determination**  
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**Recommendation and Coordination Signatures**


This determination is based on the information currently available and is subject to planning or environmental review or change if additional information is received.

**Recommended by:**

  
Project Manager, Planning, ANE-610

Date: 8-29-12

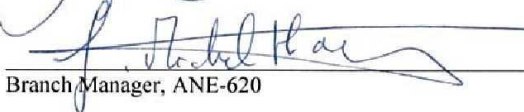
**Coordination:**

  
Project Manager, Engineering, ANE-620

Date: 8/29/12

  
Lead Certification & Safety Inspector, ANE-620

Date: 8/29/2012

  
Branch Manager, ANE-620

Date: 8/29/12

  
Branch Manager, ANE-610

Date: 8/29/12

**Approved:**

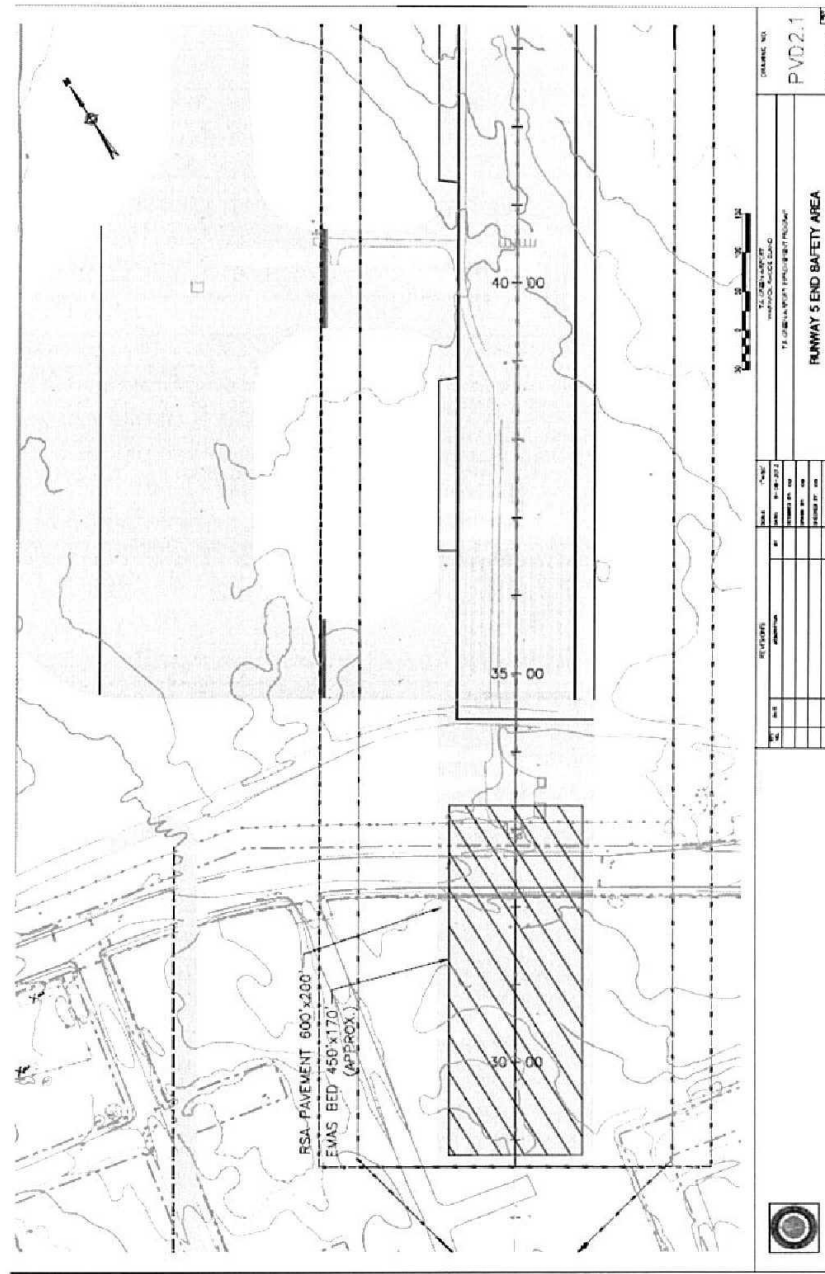
  
Mary Walsh, Division Manager, ANE-600

Date: 8/29/12



**Runway Safety Area Determination  
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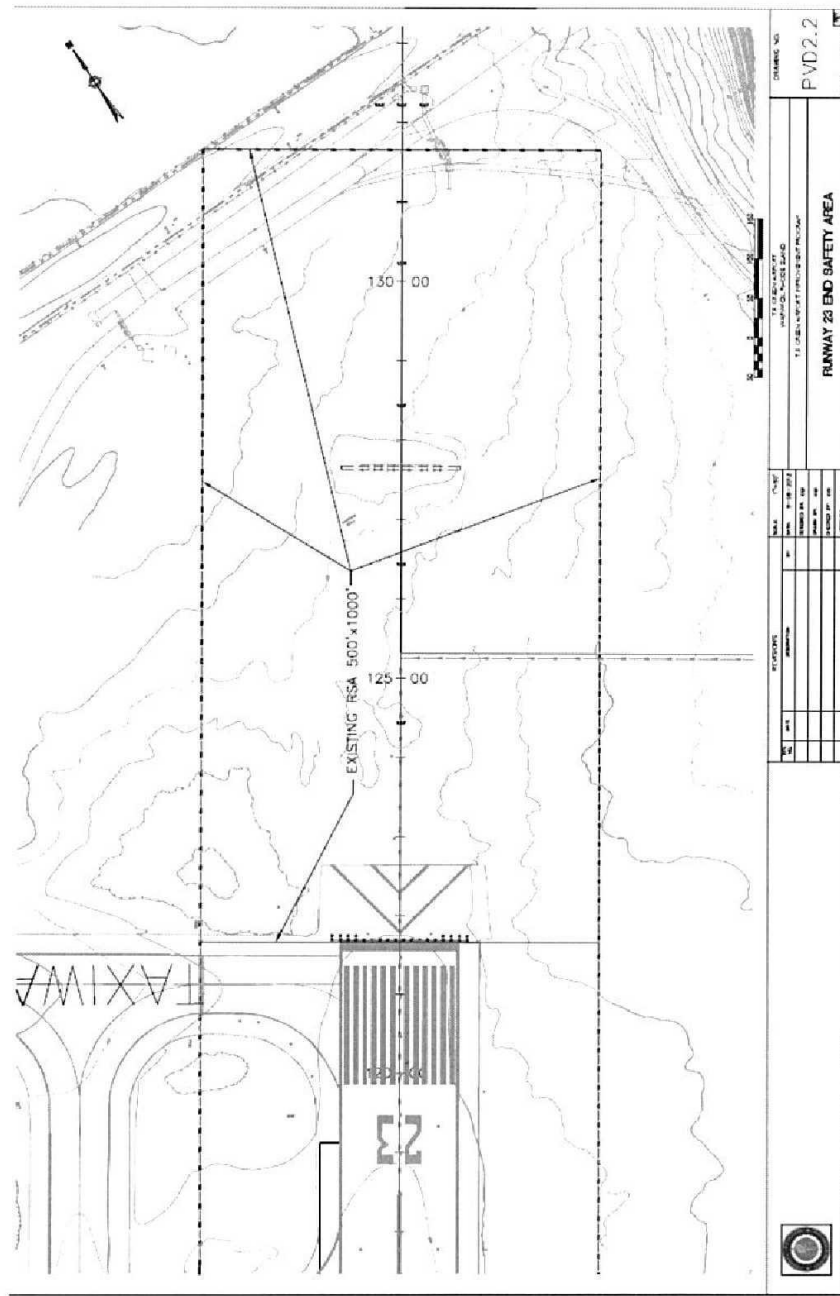
**Exhibit 1: Runway End 5 RSA**



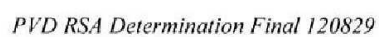


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**Exhibit 2: Runway End 23 RSA**

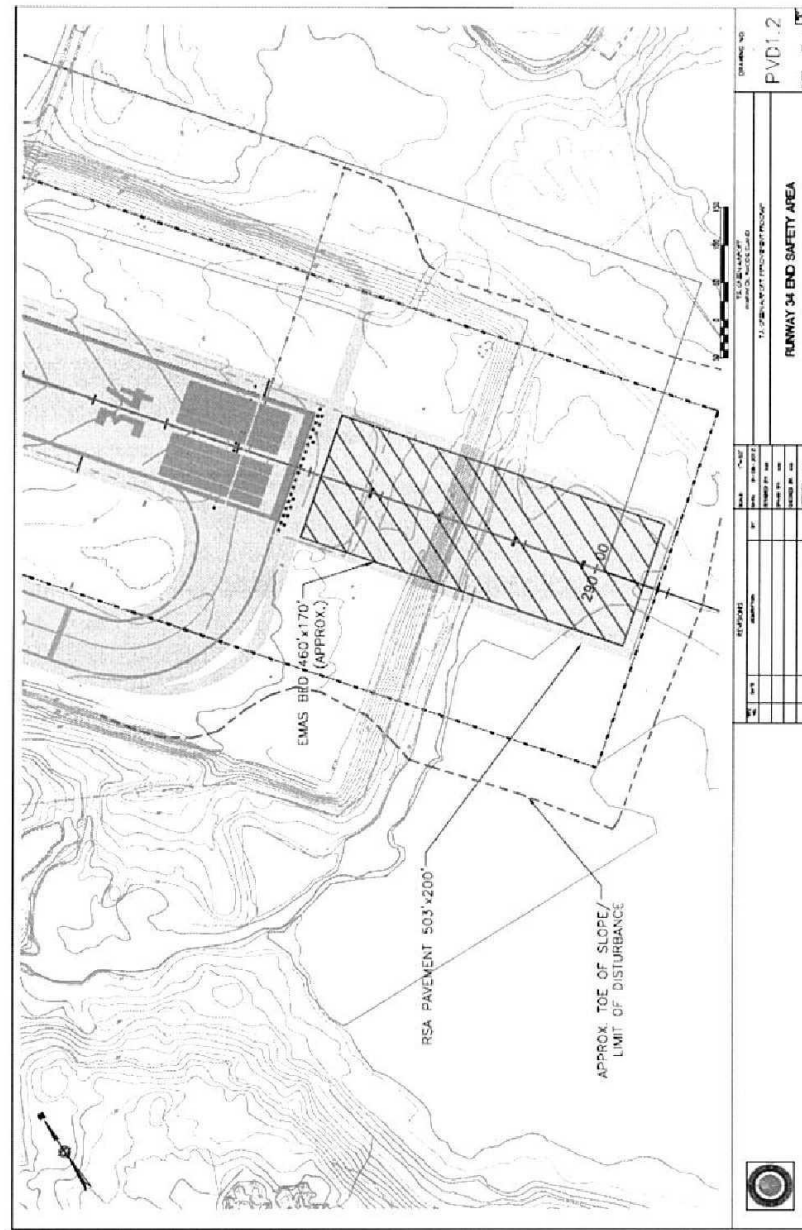


**Exhibit 3: Runway End 16 RSA**



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August 2012**

**Exhibit 4: Runway End 34 RSA**







## Rhode Island Airport Corporation

Peter A. Frazier  
Interim President and CEO

Telephone: 401-691-2288  
E-mail: [pfrazier@pvdairport.com](mailto:pfrazier@pvdairport.com)

November 29, 2012

### **Via Email and US Mail**

Mary Walsh, Manager  
Airports Division, New England Region  
Federal Aviation Administration  
12 New England Executive Park  
Burlington, MA 01803

Dear Ms. Walsh:

Please accept this letter from the Rhode Island Airport Corporation (RIAC) as its affirmation that it intends to proceed with, subject to the completion of the Record of Decision written reevaluation process, its proposed modifications to the Runway 16-34 runway safety area elements of the preferred alternative for T. F. Green State Airport Improvement Program project. This program was the subject matter of the Final Environmental Impact Statement (FEIS) published in July 2011 and the preferred alternative was selected in the September 2011 Record of Decision. These modifications include:

1. revising to the Engineering Material Arresting System (EMAS) designs for both the Runway 16 and Runway 34 ends;
2. not relocating Airport Road, Delivery Drive and associated infrastructure;
3. not shifting Runway 16/34 96 feet to the north;
4. deferring the runway reconstruction on Runway 16/34 and the relocation of Taxiway to dates later than anticipated in the FEIS; and
5. deferring the relocation of Taxiway C to a date later than anticipated in the FEIS.

The foregoing modifications were evaluated in the Federal Aviation Administration's Runway Safety Area Determination disseminated on or about August 29, 2012. RIAC concurs that the revised project is a reasonable and practicable alternative and will provide a meaningful enhancement of safety.

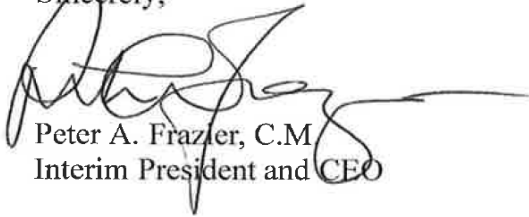
As you are aware, there are additional schedule modifications to the FEIS driven by a variety of factors including funding and construction sequencing. In this regard, RIAC plans now show that:

1. relocating Main Avenue and extending runway 5/23 will commence in 2015 with anticipated completion by the end of 2017;

2. relocating Winslow Park will commence in 2014; and
3. all other improvements, some of which are demand driven, will likely occur beyond 2020.

Please do not hesitate to contact me if you have any questions or comments at 401-691-2288.

Sincerely,

A handwritten signature in black ink, appearing to read 'Peter A. Frazier', with a long horizontal flourish extending to the right.

Peter A. Frazier, C.M.  
Interim President and CEO